WE CLAIM AS OUR INVENTION:

1. A high-capacity x-ray tube comprising:

a vacuum housing;

a cathode stationarily mounted in said vacuum housing;

an anode rotatably mounted in said vacuum housing;

a drive for rotating said anode, said drive having a bearing shaft disposed in said vacuum housing; and

said anode comprising an anode plate and a load-bearing part having a first end attached to said bearing shaft and a second end attached to said anode plate via a soldered connection between respective connection surfaces of said anode plate and said load bearing part, with said connection surfaces configured and oriented relative to each other to form a positive fit for causing said connection surfaces to be subject substantially only to compression upon rotation of said anode.

2. A high-capacity x-ray tube as claimed in claim 1 wherein said connection surfaces form a clamp connection as said positive fit.

3. A high-capacity x-ray tube as claimed in claim 1 wherein said connection surfaces form a screw connection as said positive fit

4. A high-capacity x-ray tube as claimed in claim 1 wherein said solder connection contributes to said positive fit.

5. A high-capacity x-ray tube as claimed in claim 1 wherein said connection surfaces comprise a first surface at said second end of said load-bearing part and a second surface formed by an inner annular edge of said anode plate, said first and second surfaces facing each other and, as viewed toward said bearing shaft, said first surface comprising a plurality of gradations, at least one of said

gradations producing said positive fit and at least one further one of said gradations forming, with said second surface, an acceptance space for solder of said solder connection.

6. A high-capacity x-ray tube as claimed in claim 1 wherein said solder connection produces flaked solder particles, and wherein said connection surfaces form a recess for catching said solder particles.

7. A high-capacity x-ray tube as claimed in claim 6 wherein one of said connection surfaces is beveled to form said recess.

8. A high-capacity x-ray tube as claimed in claim 1 wherein said solder connection comprises titanium solder.